

GPS:

Economics

AGPS marks the spot

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One of the main problems with GPS (Global Positioning Satellite), according to Nati Freiberg, vice president of marketing and business development at start-up Cell-Guide, is that it's just not accurate enough.

Try to locate a person in a dense urban area like the diamond exchange in Ramat Gan and you will find it virtually impossible to pinpoint them under a range of 500 meters. In a crowded area that's an awful lot of space to search through.

Now Cell-Guide believes it has an alternative - an advanced GPS technology that is 1,000 times more sensitive than traditional GPS, and a whole lot quicker too. Freiberg boasts that Cell-Guide's Assisted GPS (AGPS) location-enabling chip can locate a person or a place in 5-10 seconds - a great deal faster than conventional GPS which can take anything between 30 seconds to 15 minutes. It also works inside buildings as well as out on the street and has substantially lower power consumption - some 98-99 percent lower than conventional GPS, claims Freiberg.

Cell-Guide's solution can be installed in existing cellular telephone chips, which means it can be used in current telephones and next generation ones. Because it takes so little power, the chip has relatively little impact on the cell-phone battery. Using GPS for example, users would have to recharge their batteries every four to five hours.

All of this is important because GPS is likely to take a far more important role in our lives in the very near future. Developed by the US army as a means of locating ships and aircraft, GPS has gradually been making its entrance into civilian life. Already more and more people are using location-based services to find their way around. By 2004 some experts suggest that every new car will be fitted with GPS.

The real boost for the industry, however, came in 1996 when the US government committee, the FCC, issued a new ruling - the E911 - requiring all US mobile carriers to be able to identify the exact location of mobile phone users within 30 seconds. A recent survey in the US, for example, showed that 60% of all emergency calls are now made from cell phones. Calls made on land lines can be traced instantly. On a mobile phone, however, police and emergency services have no way of telling where the call was made. Moreover mobile users also proved fairly ignorant of their whereabouts. In a survey 60% of people who were asked to identify their location could not.

The FCC has already given mobile carriers an extension on its original deadline to October this year, but in the wake of September 11, carriers are running out of time, and the FCC is putting on pressure, requesting progress reports every quarter.

A similar initiative is now being introduced in Europe, though the authorities are not yet

insisting that carriers introduce this service, but merely recommending that they do. Cell-Guide, which was founded in November 1999 with seed investment of less than \$1m. from UK investment bank Beeson Gregory, Sampson Ventures, Cap Ventures, and other private investors, feels that it offers mobile carriers exactly what they are looking for.

"GPS can't comply with the standard," says Freiberg. "It doesn't have enough sensitivity. If someone falls over or gets into trouble and dials a number on the cell-phone, they need accuracy within a few meters."

Research company, the Strategis Group estimates that the location-based services market will be worth \$87 billion by 2005. This includes services which range from locating the nearest Chinese restaurant or pharmacy, to map-guidance and keeping tabs on the location of children, the elderly and the disabled.

CELL-GUIDE IS focusing on two products. The first is a sensor installed inside a cellular telephone battery. The company is now involved in a project with Nokia to include its technology in one of Nokia's 5/6/7100 series batteries, which costs \$150, including accessories. Since September 11, the company has seen a tremendous leap in interest. "People want peace of mind, they worry about their own safety and that of their children," says Freiberg. "Demand for this is huge. People are already asking to buy it." The sensor should go into mass production later this year.

In the next two to four years Freiberg believes that Cell-Guide's technology will be embedded into most handsets. So far the company has signed agreements with two top chipset manufacturers and expects to sign deals with most of the leading chipset manufacturers by the end of this year.

The second product is an AGPS tracker which will have a distress button, as well as one or two buttons which connect directly to certain specified numbers, say mum at work, or a caregiver on his mobile. Using the device a parent, family member or caregiver will be able to track a person through the Internet and know their location at all times.

If the person runs into trouble they can hit the distress button and their location will be instantly identified. Alternatively it will be possible to designate a certain area, say one kilometer from home and receive an alert if the person goes outside of this area. The device will send out an e-mail or text message as an alert.

"This kind of emergency device with voice capabilities is increasingly in demand," says Freiberg. "If your father is 80 and you worry about him leaving the house and getting lost, then a system like this gives you great peace of mind. Often people with minor disabilities are afraid to leave home because of the slim chance that something might happen. Imagine how it improves their quality of life if they can go out without fear."

Cell-Guide is now involved in a 4m. euro project to offer location-based services for the elderly and disabled with the European Commission, the Red Cross, a number of European universities and hospitals, and SFR, one of the world's largest mobile operators. Field trials are taking place in Germany and Britain with about 40-60 users.

The European project, which is under the auspices of the European Fifth Framework Program for R&D, started in April this year and will last for two years. So far the response has been extremely positive. "People are begging for a system like this, particularly care givers. They want this system as soon as possible," says Freiberg. The first test results will be published later this year.

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Aside from being of interest to families, the AGPS tracker is likely to be of interest to search and rescue organizations, emergency services and even maintenance companies that want to know the location of their staff.

Cell-Guide's AGPS tracker is also to be used in a project with the European Space Agency which plans to launch Galileo, a competing system to GPS, in the near future. AS A result of all this activity Cell-Guide, which employs just 20 people, is already beginning to see sales. Not millions of dollars yet, but still what Freiberg describes as "impressive figures." There is even talk of breaking even sometime in 2003.

Cell-Guide's potential market is huge. The cost of putting Cell- Guide technology into a cellphone is just a few dollars. Every year 400 to 500 million handsets are sold around the world. By 2005 the annual figure is expected to rise to one billion handsets, of which an estimated 30-40% will have GPS capability - more in the US because of the FCC ruling. If Cell-Guide was to grab a share of even just 10% of that figure, it would be a vast market.

The company's main limitation today is that it doesn't have enough resources to accommodate dozens of field trials. The company has already carried out four field trials with mobile operators and has received requests for several more. Some will begin this summer. "We don't have the resources for this," Freiberg acknowledges. "We are still a start-up company. We are growing quite fast but we can't grow from zero to maximum in one go."

In an effort to help this process along the company is now in the midst of a private placement with existing investors and a few new ones. In past rounds it raised nearly \$10m. This placement should be completed by the summer. Freiberg does not yet know how much will be raised but he estimates it will be in the region of a few million dollars. Investors are likely to be predominantly from abroad. "This is a new market in Israel. We are better known in Europe. The VCs here understand optics and Internet and don't see the big money being in this market." The global market for telematics, including GPS, is an estimated \$4- 5b. a year.

Despite Freiberg's optimism things are not necessarily going to be as easy as he anticipates. GPS is becoming increasingly popular and is seeing growth in Europe, the US and the Far East, but the market may develop at a slower rate than anticipated. Most assume that the years 2003/2004 will be the years that GPS takes off. But this might only happen in 2006.

Cell-Guide intends to focus on the European market first because the market for mobile phones is much larger than the US today, and the market is closer. So far field trials have either been in Europe or Israel, though the company is now thinking of starting a few field trials in the US as well. The company plans to open a mobile support office in Europe later this year.

In the meantime Cell-Guide must stay abreast of the competition. Some 12-15 patents protect the technology and Freiberg hopes that this is a big enough barrier.

Cell-Guide's main competitor is Qualcomm, a US company with a market capitalization of some \$30b., which acquired in January 2000 a US start-up involved in the same sector for \$1b.

"It gives us a ballpark figure," says Freiberg of the company, which was a similar size to Cell-Guide when it was purchased. "Something to wish for." This strong US competition

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is another reason why Cell-Guide plans to focus on the European market first. Qualcomm focuses on CDMA, and has no technology suited to GSM - the European system. Cell-Guide, however, is an expert in GSM.

Cell-Guide does face other competition in Europe but Freiberg insists that it is only small-time operators who began developing their technology later than Cell-Guide.

Freiberg does admit, however, that things might well have been easier for Cell-Guide if it had been based in the US.

"We'd probably grow easily and more rapidly," says Freiberg. "If we'd been there, maybe Qualcomm would have bought us." Despite its Israeli roots, however, Freiberg has high hopes that Cell-Guide will gain a large market share in both Europe and the Far East. He anticipates steady growth. In Europe, particularly, he anticipates growing demand for devices aimed at tracking the elderly because the population in Europe is growing older. In two years he hopes to see sales rise to \$15-20m., a figure he expects will rise to between \$40 to \$50m. two to three years later.

"We want to grow slowly," he says. "Slowly, but solidly."